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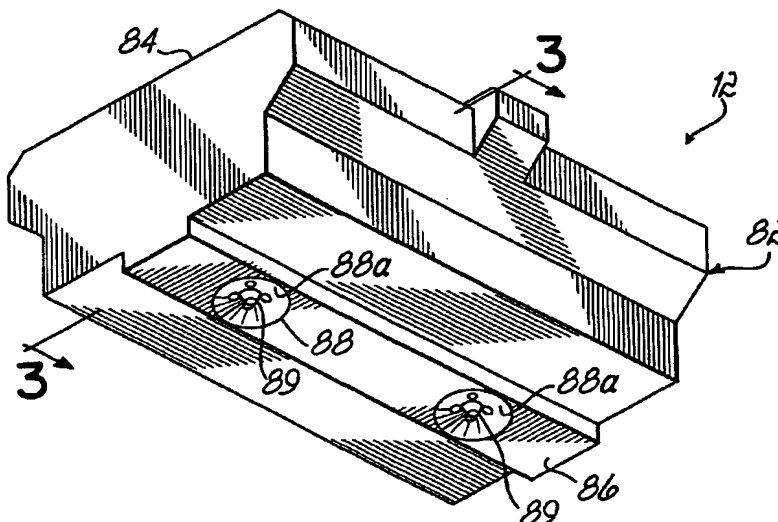
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(54) Title: APPLICATOR AND NOZZLE FOR DISPENSING CONTROLLED PATTERNS OF LIQUID MATERIAL



(57) Abstract: An apparatus (10) for dispensing a filament of liquid includes a nozzle (12) having a liquid discharge passage (46) and a plurality of air discharge passages (70, 72, 74, 76). The liquid discharge passage (46) extends centrally through a frustoconical protrusion (89) which is located in a recess (88). The air discharge passages (70, 72, 74, 76) are arranged in a pattern around the liquid discharge passage (46) at the base of the protrusion (89) within the recess (88). The air discharge passages (70, 72, 74, 76) have axes (70a, 72a, 74a, 76a) which are inclined such that jets of air from the air discharge passages (70, 72, 74, 76) are tangential to the filament (13) dispensed from the liquid discharge passage (46). The jets of air cause the filament (13) to move in a swirl pattern as it is deposited on a substrate (18).

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